

## CLAIM AMENDMENTS

### IN THE CLAIMS:

This listing of the claims will replace all prior versions, and listing, of claims in the application or previous response to office action:

1-9. **Cancelled.**

10. (Previously Presented) A method of determining the location of a touch event within a display area surrounded by a touch frame having a plurality of light emitting elements and a plurality of light receiving elements forming a plurality of triangular zones of light beam paths, each triangular zone being defined by a single light receiving element and a plurality of light emitting elements, the number and positioning of receivers being sufficient to form partially overlapping zone pairs such that the touch event lies within at least two zone pairs, said method comprising:

monitoring each of the zone pairs for blockage of at least one light beam path; and

upon such blockage, calculating the location of the touch event associated with the blockage based on the slopes and end points of at least two intersecting blocked light beam paths from a first zone pair and two intersecting blocked light beam paths from a second zone pair.

11. (Original) The method of claim 10 wherein monitoring each of the zone pairs for blockage of at least one light beam path comprises:

randomly activating the light emitting elements, one at a time; and

monitoring the output of each light receiving element associated with the activated light emitting element for an output indicative of a blocked light beam path.

12. (Previously Presented) The method of claim 11 wherein the light emitting elements are activated at pseudo random intervals.

13. (Previously Presented) The method of claim 11 wherein the light emitting elements are activated in a pseudo random sequence.

14-24. **Cancelled.**

25. **(Currently Amended)** A method of determining the location of a touch event within a display area surrounded by a touch frame having a plurality of light emitting elements and a plurality of light receiving elements forming a plurality of triangular zones of light beam paths each having a slope and endpoints, each triangular zone defined by a single light receiving element and a plurality of light emitting elements, the number and positioning of receivers being sufficient to form partially overlapping triangular zones such that the touch event is fully located within each of at least four triangular zones having four different associated light receiving elements, said method comprising:

for each of the plurality of triangular zones, storing the slopes and end points of each light beam path;

**randomly** activating the light emitting elements, ~~one at a time~~;

monitoring the output of each light receiving element associated with the activated light emitting element for blockage of a light beam path; and

upon such blockage, calculating the location of the source of blockage based on the slopes and end points of at least two intersecting blocked light-beam paths.

26. (Original) The method of claim 25 wherein monitoring the output of each light receiving element associated with the activated light emitting element for blockage of a light beam path comprises:

comparing the profile of the output to an expected profile having a time-based noise threshold;

identifying a light beam as noise if there is a pulse edge in the profile prior to the noise threshold;

identifying a light beam as connected if there is a pulse edge in the profile after the noise threshold; and

identifying all other light beams as blocked.

27. (Original) The method of claim 26 wherein the time-based noise threshold is defined by the response time of the light receiving element.

28. (Original) The method of claim 26 wherein identifying a light beam as connected or blocked comprises: counting the identification of a light beam over successive triggers of the light emitting element associated with the light beam; and outputting a confirmed blocked or connect identification after the counter has reached a specified value.

29. (Original) The method of claim 28 wherein the specified value is at least two successive triggers of the associated light emitting element.

30. **(Currently Amended)** A touchframe system for determining the position of a touch event within a display area, said system comprising:

a plurality of light emitting elements positioned around the perimeter of the display area; a plurality of light receiving elements, each of the light receiving elements in combination with a plurality of the light emitting elements forming a triangular zone of light beam paths, each triangular zone defined by a single light receiving element and a plurality of light emitting elements, the number and positioning of light receiving elements being sufficient to form partially overlapping triangular zone pairs such that the touch event lies fully within at least two partially overlapping triangular zone pairs including four triangular zones having four different associated light receiving elements; and

a processor programmed to:

**randomly** activate the light emitting elements, ~~one at a time~~;

monitor the output of each light receiving element associated with the activated light emitting element for blockage of a light beam path; and

upon such blockage, calculate the location of the touch event associated with the blockage based on the slopes and end points of intersecting blocked light-beam paths from each of the at least two partially overlapping triangular zone pairs.

31. (Original) The system of claim 30 further comprising a memory device having stored therein the slopes and end points of each light beam path within each of the zones

32. (Cancelled)

33. (Previously Presented) The system of claim 30 wherein the processor is programmed to calculate the location of the touch event using the most orthogonally overlapping triangular zone pairs.

34. (Previously Presented) The system of claim 30 wherein the processor is programmed to:

individually calculate a location of the touch event for each pair of intersecting blocked light-beam paths; and

average the individual results to obtain the location of the touch event.

35. (Previously Presented) The system of claim 30 wherein each zone in each triangular zone pair is triangular with a row of light emitting elements forming one side of the triangle and one light receiving element forming an apex opposite the row of light emitting elements.